

[0023] According to an embodiment, said input of the space compression is obtained by detecting a pinching gesture with the fingers pressing the first and second part of the touch screen.

[0024] According to an embodiment, the length of the pinching gesture defines the amount of compressing the space between first and second point.

[0025] According to a second aspect, there is provided an apparatus comprising at least one processor, memory including computer program code, the memory and the computer program code configured to, with the at least one processor, cause the apparatus to at least: capturing, by a device equipped with a camera, at least one image about a first physical object; recognizing the first physical object on the basis of the at least one captured image; retrieving a 3D model of the first physical object from a memory; and displaying the 3D model of the first physical object on a display of the device.

[0026] According to a third aspect, there is provided a computer program embodied on a non-transitory computer readable medium, the computer program comprising instructions causing, when executed on at least one processor, at least one apparatus to: capturing, by a device equipped with a camera, at least one image about a first physical object; recognizing the first physical object on the basis of the at least one captured image; retrieving a 3D model of the first physical object from a memory; and displaying the 3D model of the first physical object on a display of the device.

[0027] These and other aspects of the invention and the embodiments related thereto will become apparent in view of the detailed disclosure of the embodiments further below.

LIST OF DRAWINGS

[0028] In the following, various embodiments of the invention will be described in more detail with reference to the appended drawings, in which

[0029] FIGS. 1a and 1b show a system and devices suitable to be used in a remote control system according to an embodiment;

[0030] FIG. 2 shows a flow chart of a remote control method according to an embodiment;

[0031] FIGS. 3a-3c show an exemplified implementation of the remote control method on a mobile device according to an embodiment;

[0032] FIGS. 4a-4e show how a user of the mobile device may rotate the 3D model on the display according to an embodiment;

[0033] FIGS. 5a-5d show an exemplified implementation of interactive user interfaces in the remote control method according to an embodiment;

[0034] FIGS. 6a-6d show another exemplified implementation of the remote control method on a mobile device according to an embodiment;

[0035] FIG. 7 shows a flow chart of a compression method of visual information according to an embodiment;

[0036] FIGS. 8a and 8b show an exemplified implementation of the compression method of visual information according to an embodiment;

[0037] FIGS. 9a and 9b show another exemplified implementation of the compression method of visual information according to an embodiment; and

[0038] FIG. 10 shows another exemplified implementation of the compression method of visual information according to an embodiment.

DESCRIPTION OF EMBODIMENTS

[0039] FIGS. 1a and 1b show a system and devices suitable to be used in an augmented reality system according to an embodiment. In FIG. 1a, the different devices may be connected via a fixed network 210 such as the Internet or a local area network; or a mobile communication network 220 such as the Global System for Mobile communications (GSM) network, 3rd Generation (3G) network, 3.5th Generation (3.5G) network, 4th Generation (4G) network, Wireless Local Area Network (WLAN), Bluetooth®, or other contemporary and future networks. Different networks are connected to each other by means of a communication interface 280. The networks comprise network elements such as routers and switches to handle data (not shown), and communication interfaces such as the base stations 230 and 231 in order for providing access for the different devices to the network, and the base stations 230, 231 are themselves connected to the mobile network 220 via a fixed connection 276 or a wireless connection 277.

[0040] There may be a number of servers connected to the network, and in the example of FIG. 1a are shown servers 240, 241 and 242, each connected to the mobile network 220, which servers may be arranged to operate as computing nodes (i.e. to form a cluster of computing nodes or a so-called server farm) for the augmented reality system. Some of the above devices, for example the computers 240, 241, 242 may be such that they are arranged to make up a connection to the Internet with the communication elements residing in the fixed network 210.

[0041] There are also a number of end-user devices such as mobile phones and smart phones 251, Internet access devices (Internet tablets) 250, personal computers 260 of various sizes and formats, televisions and other viewing devices 261, video decoders and players 262, as well as video cameras 263 and other encoders. These devices 250, 251, 260, 261, 262 and 263 can also be made of multiple parts. The various devices may be connected to the networks 210 and 220 via communication connections such as a fixed connection 270, 271, 272 and 280 to the internet, a wireless connection 273 to the internet 210, a fixed connection 275 to the mobile network 220, and a wireless connection 278, 279 and 282 to the mobile network 220. The connections 271-282 are implemented by means of communication interfaces at the respective ends of the communication connection.

[0042] FIG. 1b shows devices for an augmented reality system according to an example embodiment. As shown in FIG. 1b, the server 240 contains memory 245, one or more processors 246, 247, and computer program code 248 residing in the memory 245 for implementing, for example, an augmented reality system. The different servers 241, 242, 290 may contain at least these elements for employing functionality relevant to each server.

[0043] Similarly, the end-user device 251 contains memory 252, at least one processor 253 and 256, and computer program code 254 residing in the memory 252 for implementing, for example, gesture recognition. The end-user device may also have one or more cameras 255 and 259 for capturing image data, for example stereo video. The end-user device may also contain one, two or more microphones 257 and 258 for capturing sound. The end-user device may also contain sensors for generating the depth information using any suitable technology. The different end-user devices 250, 260 may contain at least these same elements for employing functionality relevant to each device. In another embodiment of this